REMARKS

Claims 1-23 are pending in the present application.

At the outset, Applicants wish to thank Examiner Kumar for the indication that the rejection under 35 U.S.C. §102(a) over Kim et al ('99) is withdrawn (page 2, paragraph 2 of the Advisory Action mailed May 5, 2004). It is noted that paragraph 3 on page 1 of the Advisory Action indicates that Applicants' reply has overcome none of the rejections. Therefore to ensure completeness and accuracy of the prosecution history of the present application, Applicants repeat the traversal argument over Kim et al ('99) below.

The rejection of Claims 1-20 under 35 U.S.C. §102(a) over Kim et al (*Applied and Environmental Microbiology*, 1999) is traversed on the ground that Kim et al ('99) may not be cited as prior art against the present application.

Specifically, Kim et al ('99) was published in March 1999. In contrast, the present application claims priority to JP 11-50562, filed on February 26, 1999, *at least two days prior* to the publication of Kim et al ('99). To perfect their claim of priority under 37 C.F.R. §1.55, Applicants filed a certified English translation of JP 11-50562 on September 22, 2003. Based on the earlier filing date, Kim et al ('99) is not prior art against the present claims and the rejection over this reference should be withdrawn.

Although the Examiner has acknowledged the perfection of priority (paper number 17, page 3, lines 6-8), the Examiner has maintained the rejection over Kim et al ('99). Applicants submit that this rejection is completely without merit. In maintaining the rejection over Kim et al ('99) the Examiner points to *In re Schlittler*, which held:

> A publication disseminated by mail is not prior art until it is received by at least one member of the public. Thus, a magazine or technical journal is effective as of its date of publication (date when first person receives it) ***not*** the date it was mailed or sent to the publisher. (*emphasis added*)

Despite this well-established precedent, the Examiner points to the date that the publisher of *Applied and Environmental Microbiology* received the manuscript (*i.e.*, September 8, 1998) as the date upon which Kim et al ('99) is available as a reference. Clearly the Examiner has incorrectly applied the Board's ruling in *In re Schlittler* as the Board clearly states that the effective date as a reference is the "date of publication" (*i.e.*, March 1999), not the date it was received by the publisher.

Therefore, Applicants submit that when the law is properly applied, it is clear that the present application has an effective filing date that is *at least two days prior* to the publication of Kim et al ('99). Accordingly, Applicants submit that this ground of rejection is unsustainable and should be withdrawn.

Acknowledgment that this ground of rejection has been withdrawn is earnestly solicited.

The rejection of Claims 1-20 under 35 U.S.C. §103(a) over Kim et al (*Journal of Fermentation and Bioengineering*, 1995) is traversed.

The present invention provides, in part, a peroxidase enzyme isolated from a crude enzyme solution of Geotrichum candidum Dec 1 FERM BP-7033, which has the following properties:

a) a property to degrade and decolorize a dye;

b) a molecular weight of 60 kDa, by the molecular weight assay as determined by SDS-PAGE;

c) a molecular weight of 55 kDa, by the molecular weight assay as determined by gel filtration; and

d) pI 3.8, as determined by an assay of isoelectric focusing (Claim 1).

The present invention further provides a method for degrading and decolorizing a dye by employing the aforementioned peroxidase (Claim 6). Claim 2 is drawn to an isolated enzyme having the sequence of SEQ ID NO: 7. Claim 3 is drawn to an isolated gene encoding an enzyme having a DNA sequence of SEQ ID NO. 8.

Kim et al ('95) disclose an isolated microorganism, *Geotricum candidum* Dec1, which may decolorize eighteen dyes and three model compounds (See Abstract and Table 2 of this reference). Kim et al ('95) also disclose that a crude extracellular enzyme solution, in which the deolorizing activity was more than 100 times that of the Dec1 culture broth "showed peroxidase activity, indicating that some peroxidases are responsible for dye-decolorization." (see Abstract)

It is the Examiner's position that Kim et al ('95) suggest the presence of a peroxidase enzyme in *Geotrichum candidum* Dec1 that would necessarily have the same molecular weight and isoelectric point as the claimed peroxidase. This assertion by the Examiner is incorrect as Kim et al ('95) do not disclose an isolated peroxidase, instead Kim et al ('95) disclose that Dec 1 culture broth "showed peroxidase activity' (see Abstract).

Moreover, Applicants note, that Kim et al ('95) only disclose a culture broth and a crude extracellular enzyme solution. At no point is any isolated peroxidase enzyme disclosed or suggested, much less a peroxidase having the claimed characteristics. Specifically, at no point do Kim et al ('95) disclose or suggest (a) the identity of the enzyme responsible for decoloring dyes, (b) how the artisan would identify this enzyme, or (c) how the artisan would purify the enzyme even if it were identified.

The Examiner disregards this argument asserting that the "extracellular enzyme solution" would qualify as an "isolated" peroxidase. The Examiner bases this assertion on the premise that to obtain an extracellular enzyme solution the artisan would have to at least remove some "extracellular parts of *Geotrichum candidum* Dec1" (Advisory Action, page 3, lines 1-2). The Examiner further submits "Applicant's specification does not define the term isolated to mean only enzyme" (Advisory Action, page 3, lines 2-3). However, this assertion by Examiner is incorrect. Applicants direct the Examiner's attention to the specification at page 8, line 3 to page 9, line 4, which clearly define the term "isolated" to mean removal of a peroxidase having the claimed properties from a crude enzyme solution (e.g., the extracellular enzyme solution of Kim et al ('95)). In order to make this distinction clear, Claim 1 has been amended to indicate that the peroxidase enzyme is *isolated from a crude enzyme solution of* Geotrichum candidum Dec 1 FERM BP-7033.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation... to modify the reference... Second, there must be a reasonable expectation of success. Finally, the prior art reference... must teach or suggest all the claim limitations." (MPEP §2142) Applicants note that at no point do Kim et al ('95) do not disclose or suggest (a) the identity of the enzyme responsible for decoloring dyes, (b) how the artisan would identify this enzyme, or (c) how the artisan would purify the enzyme even if it were identified. Therefore, Kim et al ('95) fails to even support a *prima facie* case of obviousness.

At best, the disclosure of Kim et al ('95) may be viewed as an invitation to experiment. However, even if the Examiner were to take the position that it would be "obvious to try" to isolate the claimed enzyme from the microorganism disclosed by Kim et al ('95), "obvious to try" has long been held *not* to constitute obviousness. *In re O'Farrell*, 7 USPQ2d 1673,

1680-81 (Fed. Cir. 1988) (copy submitted May 3, 2004). A general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out. *In re Deuel*, 34 USPQ2d 1210, 1216 (Fed. Cir. 1995) (copy submitted May 3, 2004).

Furthermore, when an Examiner maintains that there is an implicit teaching or suggestion in the prior art, "the Examiner should indicate where (page and line or figure) such a teaching or suggestion appears in the prior art." (*Ex parte* Jones, 62 USPQ2d 1206, 1208 (Bd. Pat. App. & Inter. 2001) (copy submitted May 3, 2004). However, to support the applicability of Kim et al ('95), the Examiner merely states, "It would have been obvious to one of ordinary skill in the art to arrive at a peroxidase enzyme derived from *Geotrichum candidum* Dec 1 having the properties recited by the instant claims because Kim et al. suggest a peroxidase produced from *Geotrichum candidum* Dec 1 involved in the decolorization of dyes and would be expected to inherently have the same properties as recited by the instant claims." (paper number 17, page 4, lines 3-7). Therefore, the Office has not met the burden necessary to establish a *prima facie* case of obviousness.

Applicants submit that in no way can a microorganism, which contains innumerable enzymes and enzymatic pathways, render obvious the specific identity of an isolated enzyme that is theoretically contained therein. Clearly, as the Examiner must recognize, a microorganism and an enzyme are physically and chemically distinct. Further, it would be impossible for a microorganism to have all the above-mentioned properties that characterize the claimed isolated enzyme. Moreover, simple observation of activity possessed by an extracellular enzyme solution tells the artisan nothing about the enzyme(s) responsible for achieving this activity. For example, purine biosynthesis requires an intricate multi-enzyme pathway; however, this pathway and the identity of the enzymes catalyzing this multi-step

reaction would never be obvious by empirical observation that a simple bacterium is able to synthesize purines. This situation is no different from the present application in that observation that a microorganism possesses decolorizing activity or peroxidase activity does not provide insight into the enzyme(s) responsible for this activity.

Applicants note that Kim et al ('95) merely confirmed decolorizing activity possessed by Geotrichum *candidum* Dec 1; however, this confirmation was obtained with a whole cell or extracellular enzyme solution, not with an isolated enzyme. In contrast, the present invention investigated this activity, identified the enzyme responsible for this activity, and isolated (and/or purified) the enzyme responsible for this activity. The enzyme of the present invention possesses several properties described on pages 31-32 of the specification, that are not apparent or even suggested by Kim et al ('95). Applicants would also like to note that it was found that the proximal Arg residue at the ↑ position in Figure 4 that is characteristically found in Class II peroxidase enzymes was absent and that no homology was found with the sequence in the proximity of the distal His residue at the • position in Figure 4. Therefore, Applicants further submit that the sequence of peroxidase (see Claims 2 and 3) is unique from consensus fungus derived peroxidases. Such a discovery is certainly not disclosed or suggested by Kim et al ('95).

In view of the foregoing, Applicants request withdrawal of this ground of rejection.

Applicants submit that the application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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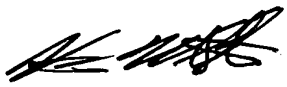

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